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### **AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions and listings of claims in the application:

#### **Listing of Claims:**

#### **CLAIMS**

1.(original) A method for determining a mechanical axis of a femur using a computer aided surgery system having an output device for displaying said mechanical axis, the method comprising:

providing a position sensing system having a tracking device capable of registering instantaneous position readings and attaching said tracking device to said femur;

locating a center of a femoral head of said femur by moving a proximal end of said femur to a first static position, acquiring a fixed reading of said first static position, repeating said moving and said acquiring for a plurality of static positions; and locating said centre by determining a central point of a pattern formed by said plurality of static positions;

digitizing an entrance point of said mechanical axis at a substantially central position of said proximal end of said femur; and

joining a line between said entrance point and said center of rotation to form said mechanical axis.

2. (original) A method as claimed in claim 1, wherein said position sensing system automatically registers said instantaneous position readings periodically and said acquiring a fixed reading comprises taking an average value of a plurality of said instantaneous position readings to determine said static position.

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3. (original) A method as claimed in claim 1, wherein said position sensing system responds to user input to register said instantaneous position readings and said acquiring a fixed reading comprises enabling said position sensing system to register a single instantaneous position reading.

4. (original) A method as claimed in claim 1, wherein said pattern formed by said plurality of static positions is a conical pattern.

5. (canceled)

6. (canceled)

7. (original) A method as claimed in claim 1, wherein said acquiring a fixed reading comprises determining a position of said proximal end relative to a reference.

8. (original) A method as claimed in claim 7, wherein said reference is a fixed reference placed on a pelvis bone adjacent to said femur.

9. (original) A method as claimed in claim 1, wherein said repeating said moving comprises waiting for a signal from an acquisition system that said fixed reading has been acquired before moving to a next static position.

10. (original) A method as claimed in claim 9, wherein said signal is an audio sound.

11. (original) A method as claimed in claim 1, wherein said repeating said moving comprises moving said proximal end at least 20 mm to a next static position.

12. (original) A method as claimed in claim 1, wherein said digitizing comprises applying an instrument to a surface of said bone such that a point and a normal axis to said point are determined.

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13. (original) A method as claimed in claim 1, wherein said substantially central position is determined visually.

14. (original) A method as claimed in claim 1, wherein said bone is a femur, said first end is a femoral head of said femur, and said substantially central position is determined by locating an inter-condylar notch.

15. (original) A method as claimed in claim 14, wherein said inter-condylar notch is located by digitizing a medial and a lateral epicondyle at said second end of said femur, forming an epicondylar axis, and determining a center of said epicondylar axis.

16. (previously presented) A system for determining a mechanical axis of a femur, the system comprising:

- a position sensing system having a tracking device adapted to register instantaneous position readings of said femur;

- an acquisition module adapted to acquire data from said position sensing system and store fixed readings of a plurality of static positions of a proximal end of said femur and a digitized reading of an entrance point of said mechanical axis;

- a computing module adapted to locate a center of a femoral head of said femur by determining a central point of a pattern formed by said plurality of static positions and joining a line between said entrance point and said center of a femoral head, thereby representing said mechanical axis; and

- an output device adapted to display said mechanical axis.

17. (previously presented) A system as claimed in claim 16, wherein said position sensing system automatically registers said instantaneous position readings periodically, and said acquisition module is adapted to take an average value of a plurality of said instantaneous position readings to determine said static positions.

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18. (previously presented) A system as claimed in claim 16, wherein said position sensing system responds to user input to register said instantaneous position readings.

19. (previously presented) A system as claimed in claim 16, wherein said acquisition module determines a position of said proximal end relative to a reference.

20. (previously presented) A system as claimed in claim 19, wherein said reference is a fixed reference placed on a pelvis bone adjacent to said femur.

21. (previously presented) A system as claimed in claim 16, wherein said acquisition module provides a signal that said fixed readings have been acquired in between each acquisition.

22. (previously presented) A system as claimed in claim 21, wherein said signal is an audio sound.

23. (previously presented) A system as claimed in claim 16, wherein said digitized reading of an entrance point is a point and a normal axis to said point.

24. (canceled)

25. (canceled)

26. (canceled)

27. (canceled)

28. (canceled)

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29. (canceled)

30. (canceled)

31. (canceled)

32. (canceled)